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**BY U.S. CERTIFIED MAIL**

January 28, 2016

Citizen Suit Coordinator  
Environment and Natural Resources Division  
Law and Policy Section  
P.O. Box 7415  
Ben Franklin Station  
Washington, DC 20044-7415

Attorney General  
U.S. Department of Justice  
Citizen Suit Coordinator  
Room 2615  
950 Pennsylvania Avenue, N.W.  
Washington, DC 20530-0001

Gina McCarthy, Administrator  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

Re: California Communities Against Toxics' ("CCAT") Notice of Intent to Sue Los Angeles  
Department of Water and Power ("LADWP") – Settlement Agreement; 45-day review

Dear Citizen Suit Coordinators,

On or about January 25, 2016, CCAT and LADWP entered into a settlement agreement setting forth mutually agreeable settlement terms to resolve the allegations set forth in CCAT's Notice of Intent letter dated October 6, 2014. CCAT elected to refrain from filing a lawsuit in this matter. Pursuant to the terms of the settlement agreement and 40 C.F.R. § 135.5, the enclosed settlement agreement is being submitted to the United States Environmental Protection Agency and the U.S. Department of Justice for a 45-day review period. If you have any questions regarding the settlement agreement, please feel free to contact me or counsel for LADWP listed below. Thank you for your attention to this matter.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Doug J. Chermak'.

Douglas J. Chermak  
Attorneys for California Communities Against Toxics

cc via First Class Mail: Jared Blumenfeld, Regional Administrator, EPA Region 9

cc via e-mail: Michelle Lyman, Counsel for LADWP, Michelle.Lyman@ladwp.com

Encl.



# ATTACHMENT

## **SETTLEMENT AGREEMENT AND MUTUAL RELEASE OF CLAIMS**

This Settlement Agreement and Mutual Release of Claims ("Agreement") is entered into by and between the California Communities Against Toxics ("CCAT") and the City of Los Angeles acting by and through its Department of Water and Power ("LADWP") (collectively, the "Settling Parties"), with respect to the following facts and objectives:

### **RECITALS**

**WHEREAS**, CCAT is an unincorporated non-profit association dedicated to working with communities to advocate for environmental justice and pollution prevention. Jane Williams is the Executive Director of CCAT;

**WHEREAS**, LADWP is a municipal utility that provides water and power to 3.8 million businesses and residents within the City of Los Angeles ("City"). LADWP owns and operates four in-basin power generating facilities including the Valley Generating Station at 11801 Sheldon St./9430 San Fernando Rd., Sun Valley, California ("Facility") from which storm water runoff is discharged pursuant to State Water Resources Control Board Water Quality Order No. 2014-0057-DWQ, National Pollutant Discharge Elimination System General Permit No. CAS000001, Requirements for Storm Water Discharges Associated with Industrial Activities Excluding Construction Activities (the "2015 General Permit");

**WHEREAS**, on or about October 6, 2014, CCAT provided LADWP and certain of its employees with a Notice of Violation and Intent to File Suit ("60-Day Notice Letter") under

Section 505, 33 U.S.C. § 1365 of the Federal Water Pollution Control Act, 33 U.S.C. §1251 *et seq.* (the “Act” or “Clean Water Act”).

**WHEREAS**, LADWP denies any and all of CCAT’s claims in its 60-Day Notice Letter;

**WHEREAS**, LADWP contacted CCAT soon after receipt of the 60-Day Notice Letter and has demonstrated that it instituted new practices at the Facility to address discharges of stormwater at the Facility in compliance with the 2015 General Permit;

**WHEREAS**, LADWP plans to implement an extensive stormwater capture project at the Facility in order to reduce off-site discharge of stormwater and to increase infiltration and groundwater recharge at the Facility;

**WHEREAS**, LADWP has also recently published and commenced implementation of its “Stormwater Capture Master Plan” designed to enhance capture and infiltration of stormwater, water quality and groundwater supply throughout the San Fernando Basin and elsewhere in the City;

**WHEREAS**, CCAT and LADWP, through their authorized representatives and without either adjudication of CCAT’s claims or admission by LADWP of any alleged violation or other wrongdoing, have chosen to resolve in full CCAT’s allegations in the 60-Day Notice Letter through settlement and avoid the cost and uncertainties of litigation;

**WHEREAS**, CCAT and LADWP anticipate that enforcement staff at the United States Department of Justice, as counsel for the United States Environmental Protection Agency, and

the United States Environmental Protection Agency, Region IX (collectively, the “Federal Agencies”), will be given the opportunity to review and express any opposition to the Agreement;

**WHEREAS**, CCAT and LADWP have agreed that it is in their mutual interest to enter into this Agreement setting forth the terms and conditions appropriate to resolving CCAT’s allegations set forth in the 60-Day Notice Letter;

**NOW, THEREFORE**, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, CCAT and LADWP hereby agree as follows:

#### **EFFECTIVE DATE**

1. The term “Effective Date,” as used in this Agreement, shall mean the date on which the Federal Agencies indicate in writing that they do not object to this Agreement, as described in Paragraph 14 below. If the Federal Agencies have not provided comment on this Agreement within the 45 day review period described in Paragraph 14 below, the Effective Date of this Agreement shall be the first business day following the expiration of the 45 day review period. If the Federal Agencies object to this Agreement within the 45 day review period, this Agreement shall be null and void.

## **THE SETTLING PARTIES' COMMITMENTS**

2. **Compliance with General Permit.** LADWP agrees to operate the Facility in compliance with the applicable requirements of the 2015 General Permit, and the Clean Water Act.

3. **Implemented Storm Water Controls.** LADWP agrees that the Facility shall maintain in good working order all storm water collection and filtering systems currently installed or to be installed pursuant to this Agreement, including but not limited to, existing housekeeping measures.

4. **Additional Best Management Practices.** Within THIRTY (30) calendar days after the Effective Date, unless otherwise noted, LADWP shall have implemented the following structural best management practices ("BMPs") to improve the storm water pollution prevention measures at the outfalls and industrial areas of the Facility depicted in Exhibit A attached hereto:

a. Non-structural treatment BMPs including Filtrexx metal sorbing socks and wattles to the two points of discharge SP-1 (which drains to San Fernando Road) and SP-3 (which drains to Sheldon Street), as depicted in Exhibit A.

b. Deployment of fiber rolls and silt fences in limited areas draining to SP-1 and SP-3, as depicted in Exhibit A.

5. **Plans for Stormwater Capture at the Facility.** Consistent with the "Stormwater Capture Master Plan," relevant parts of which are attached hereto as Exhibit B, LADWP's Water

Resources Division, Watershed Management Group, has prepared a non-public draft written scope of work document for the Valley Generating Station ("VGS") Stormwater Capture Project ("Project") with the primary objective of the Project to capture, retain, and infiltrate up to 118 acre-feet per year of stormwater on the VGS property. The scope of work for the Project is not final and has not been approved by LADWP, or the LADWP Board of Commissioners ("Board"). LADWP agrees to the following:

a. LADWP shall hold a public stakeholder meeting regarding the Project within 180 days of the Effective Date of the Agreement at a date, time and place agreed to by the Parties no less than 20 days beforehand.

b. LADWP shall provide CCAT with written notice at least two weeks in advance of any LADWP Board meeting at which the Project, or amended Project, is to be considered for approval by resolution of the Board.

c. LADWP shall conduct a written study ("Study") evaluating the hydrological capacity of and stormwater flows to "Alexander's Pond" and the "Gravel Pit" as depicted in Exhibit A in order to achieve maximum stormwater capture and infiltration at the site. The Study shall be completed and a copy provided to CCAT within 180 days of the Effective Date of the Agreement.

6. **Monitoring.** LADWP will comply with the monitoring and reporting requirements of the 2015 General Permit. The Facility shall analyze each stormwater sample taken for, at a minimum, total suspended solids, pH, oil and grease, zinc, copper, iron and lead.



7. **Monitoring Results.** Results from the Facility's sampling and analysis during the term of this Agreement shall be provided to CCAT within thirty (30) calendar days of receipt of the sampling results by the Facility or its counsel, subject to the confidentiality provisions of this Agreement described in Paragraph 15. The documented written analysis of flow rates and capacity of the non-structural BMPs set forth in paragraph 4 shall be provided to CCAT by August 1 of the calendar year starting in 2016, also subject to the confidentiality provisions of this Agreement described in Paragraph 15.

#### **MEET AND CONFER PROCEDURE**

8. **Meet and Confer Regarding Effectiveness of BMPs and Exceedances of Numeric Action Levels.** If an applicable annual Numeric Action Level (NAL) exceedance or an applicable instantaneous maximum NAL exceedance occurs during the 2015-2016 wet season, ("NAL"), LADWP agrees to take Exceedance Response Actions ("ERAs") as required by the 2015 General Permit. An annual NAL exceedance occurs when the average of all sampling results within a reporting year for a single parameter (except pH) exceeds the applicable annual NAL. The following are currently applicable NALs – Total Suspended Solids: 100 mg/L; pH: 6.0-9.0 s.u; oil & grease: 15 mg/L; chemical oxygen demand: 120 mg/L; zinc: 0.26 mg/L; lead: 0.262 mg/L; copper .0332 mg/L; and iron: 1.0 mg/L. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the applicable instantaneous maximum NAL value. An exceedance of a NAL or benchmark does not, by itself, constitute a violation of the 2015 General Permit. LADWP shall send CCAT copies of all Level 1 and/or Level 2 ERA reports via

e-mail and first class mail simultaneously to submitting such reports to the State Board or the Regional Board.

LADWP shall prepare a written report analyzing the flow rates and capacity of the non-structural BMPs at SP-1 and SP-3 to ensure that any stormwater contacts the BMPs prior to discharge sufficient to comply with NALs and, if it determines the BMPs are not sufficiently sized, re-evaluating its structural and non-structural BMPs and considering additional BMPs aimed at reducing levels observed in storm water samples ("BMP Report"). LADWP shall send the BMP Report to CCAT via e-mail and first class mail no later than August 1, 2016. The BMP Report provided by LADWP to CCAT shall be subject to the confidentiality provisions as described in Paragraph 15 of this Agreement.

CCAT may request one reasonable site visit to the Facility if during the 2015-2016 wet-season LADWP has an annual NAL, or an instantaneous NAL exceedance, or if the BMP Report determines that BMPs are not sufficiently sized. CCAT shall make its request for a site visit Facility to LADWP in writing, pursuant to the Notice provisions of Paragraph 26 below, at least fourteen (14) calendar days prior to the date of the requested site visit. The Parties shall meet and confer within seven (7) days of CCAT's written Notice to discuss in good faith the requested site visit. After the parties have met and conferred, the Facility Manager shall make the final decision on the schedule and conditions under which the site visit will be allowed to proceed as necessary to meet LADWP's operational, safety and security needs. Upon receipt of the BMP Report or Level 2 ERA Report, CCAT may review and comment on any additional measures. If requested by CCAT within thirty (30) calendar days of receipt of such BMP Report, CCAT and LADWP shall meet and confer to discuss the contents of the BMP Report or Level 2 ERA

Report and the adequacy of proposed measures to improve the quality of the Facility's storm water to levels at or below the NALs, or to ensure that BMPs capacity are adequately sized. The Settling Parties agree to cooperate and work in good faith to resolve any disagreements which arise as part of this meet and confer procedure. If within twenty-one (21) calendar days of the Settling Parties meeting and conferring, the Parties do not agree on the adequacy of the additional measures set forth in the BMP Report or level 2 ERA Report, the Settling Parties agree the provisions of Paragraph 21 shall apply.

9. **Provision of Documents and Reports.** During the life of this Agreement, LADWP shall provide CCAT with a copy of all documents submitted to the Regional Board or the State Water Resources Control Board ("State Board") concerning the Facility's stormwater discharges, including but not limited to all documents and reports submitted to the Regional Board and/or State Board as required by the 2015 General Permit. Such documents and reports shall be mailed to CCAT contemporaneously with submission to such agency.

10. **Amendment of SWPPP.** Within sixty (60) calendar days of the Effective Date of this Agreement, the Facility shall amend its SWPPP as necessary to incorporate all changes, improvements, and BMPs set forth in or resulting from this Agreement including all those set forth in Paragraph 4. The Facility shall ensure that all maps, tables, and text comply with the requirements of the 2015 General Permit. A copy of the amended SWPPP shall be provided to CCAT within thirty (30) calendar days of completion.

11. **Mitigation Payment.** In recognition of the good faith efforts by the Facility to comply with all aspects of the 2015 General Permit and the Clean Water Act, and in lieu of

payment by LADWP of any penalties, which have been disputed but may have been assessed in this action if it had been adjudicated adverse to LADWP, the Settling Parties agree that LADWP will pay the sum of \$15,000.00 thousand dollars (\$15,000.00) to Friends of the Los Angeles River ("FOLAR") for the sole purpose of conducting environmentally beneficial projects in the Los Angeles River relating to water quality improvements. FOLAR shall endeavor to apply the funds to projects within 50 miles of the Facility. If FOLAR cannot identify a suitable project within 50 miles of the Facility, then the funds shall be used on any applicable project in the watershed described above. None of the funds paid to FOLAR shall be used to pay attorneys' fees or CCAT.

a. Payment shall be provided to FOLAR as follows: Payment shall be made by LADWP to FOLAR and received within sixty (60) calendar days of the Effective Date of this Agreement. LADWP shall copy CCAT with any correspondence and a copy of the check sent to FOLAR.

12. **Fees, Costs, and Expenses.** As reimbursement for CCAT's investigative, expert and attorneys' fees and costs, LADWP shall pay CCAT the sum of thirty eight thousand five hundred dollars (\$38,500.00). Payment shall be made by LADWP and received by CCAT within sixty (60) calendar days of the Effective Date. Payment by LADWP to CCAT shall be made in the form of a single check payable to "Law Office of Gideon Kracov" and shall constitute full payment for all costs of litigation, including investigative, expert and attorneys' fees and costs incurred by CCAT that have or could have been claimed in connection with CCAT's claims, up to and including the Effective Date of this Agreement.

13. **Compliance Oversight Costs:** As reimbursement for CCAT's future fees and costs that will be incurred in order for CCAT to monitor LADWP's compliance with this Agreement and to effectively meet and confer and evaluate monitoring results for the Facility, LADWP agrees to reimburse CCAT for its reasonable fees and costs incurred in overseeing the implementation of this Agreement the sum of two thousand five hundred dollars (\$2,500.00) which shall be made payable to "Law Office of Gideon Kracov" and received within sixty (60) calendar days of the Effective Date.

14. **Review by Federal Agencies.** CCAT shall submit this Agreement to the U.S. EPA and the U.S. Department of Justice (hereinafter, the "Agencies") via certified mail, return receipt requested, within five (5) calendar days after this Agreement is signed by the Settling Parties for review consistent with 40 C.F.R. § 135.5. The Agencies' review period expires forty-five (45) calendar days after receipt of the Agreement by both Agencies. In the event that the Agencies comment negatively on the provisions of this Agreement, CCAT and LADWP agree to meet and confer in good faith to attempt to resolve the issue(s) raised by the Agencies. If CCAT and LADWP are unable to resolve any issue(s) raised by the Agencies in their comments, the Settling Parties agree that CCAT can file an action in United States District Court within ten (10) calendar days alleging claims set forth in the 60-Day Notice Letter. LADWP further agrees that it shall not assert that its BMPs installed at the Facility prior to the filing of the action deprive CCAT of the jurisdictional right to file a citizen suit under the Clean Water Act for the Facility's alleged violation of the General Permit.

15. **Confidentiality Provision.** Subject to the following, to the extent any information delivered by LADWP to CCAT or its agents is confidential and not otherwise subject to disclosure under applicable law, CCAT shall maintain that information as confidential and shall not disclose any of that information to any third party, except as provided in this Agreement. Confidential information provided pursuant to this Agreement and/or to facilitate the Meet and Confer Procedure described in Paragraph 8 shall not constitute an admission by any Settling Party and shall be inadmissible pursuant to Rule 408 of the Federal Rules of Evidence, California Evidence Code sections 1152 and 1154, and any other applicable provision to the extent allowable by law. Further, the information may not be used in any proceeding without the express permission of the Settling Party that proffered the information unless it is otherwise publically available. This provision shall not apply to the monitoring results provided pursuant to Paragraph 7 of this Agreement to the extent that, following completion of the meet and confer procedure, CCAT files an action in the United States District Court alleging violation of the Clean Water Act.

#### **NO ADMISSION OR FINDING**

16. Neither this Agreement nor any payment pursuant to the Agreement shall constitute evidence or be construed as a finding, adjudication, or acknowledgment of any fact, law or liability, nor shall it be construed as an admission of violation of any law, rule or regulation. However, this Agreement may constitute evidence in actions seeking compliance with this Agreement.

## **MUTUAL RELEASE OF LIABILITY AND COVENANT NOT TO SUE**

17. In consideration of the above, and except as otherwise provided by this Agreement, the Settling Parties hereby forever and fully release each other and their respective parents, affiliates, subsidiaries, divisions, insurers, successors, assigns, and current and former employees, attorneys, officers, directors and agents from any and all claims and demands of any kind, nature, or description whatsoever, and from any and all liabilities, damages, injuries, actions or causes of action, either at law or in equity, which the Settling Parties have against each other arising from CCAT's claims as set forth in the 60-Day Notice Letter for stormwater pollution discharges at the Facility up to and including the Termination Date of this Agreement.

18. The Settling Parties acknowledge that they are familiar with section 1542 of the California Civil Code, which provides:

A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her must have materially affected his or her settlement with the debtor.

The Settling Parties hereby waive and relinquish any rights or benefits they may have under California Civil Code section 1542 with respect to any other claims against each other arising from, or related to, the claims as set forth in the 60-Day Notice Letter for storm water pollution discharges at the Facility up to and including the Termination Date of this Settling Parties.

19. CCAT agrees that, for the period beginning on the Effective Date and ending on the Termination Date, CCAT will not support other lawsuits, by providing financial assistance, personnel time or other affirmative actions, against or relating to the Facility, that may be



proposed by other groups or individuals who would rely upon the citizen suit provision of the Clean Water Act to challenge the Facility's compliance with the Clean Water Act, the General Permit, or the 2015 General Permit.

#### **TERMINATION DATE OF AGREEMENT**

20. This Agreement shall terminate on December 31, 2017.

#### **DISPUTE RESOLUTION PROCEDURES**

21. The Settling Parties agree to cooperate and work in good faith to resolve any disagreements which arise under this Agreement. If within twenty-one (21) calendar days of the Settling Parties meeting and conferring, the Parties do not agree, the Settling Parties agree that either Settling Party can file an action in a court of competent jurisdiction to enforce the Agreement. The relevant provisions of the then-applicable Clean Water Act and Rule 11 of the Federal Rules of Civil Procedure shall govern the allocation of fees and costs in connection with the resolution of any disputes before the court. The court shall award relief limited to compliance orders, subject to proof. The Settling Parties agree to file any waivers necessary for the Magistrate Judge to preside over any settlement conference and motion practice.

#### **BREACH OF SETTLEMENT AGREEMENT**

22. **Impossibility of Performance.** Where implementation of the actions set forth in this Agreement, within the deadlines set forth in those paragraphs, becomes impossible, despite the timely good faith efforts of the Settling Parties, the Party who is unable to comply shall



notify the other in writing within seven (7) calendar days that the date failure becomes apparent, and shall describe the reason for the non-performance. The Settling Parties agree to meet and confer in good faith concerning the non-performance and, where the Settling Parties concur that the non-performance was or is impossible, despite the timely good faith efforts of one of the Settling Parties, new performance deadlines shall be established. In the event that the Settling Parties cannot timely agree upon the terms of such a stipulation, either of the Settling Parties shall have the right to invoke the dispute resolution procedure described herein.

### **GENERAL PROVISIONS**

23. **Construction.** The language in all parts of this Agreement shall be construed according to its plain and ordinary meaning, except as to those terms defined by law, in the 2015 General Permit, the Clean Water Act or specifically herein.

24. **Choice of Law.** This Agreement shall be governed by the laws of the United States, and where applicable, the laws of the State of California.

25. **Severability.** In the event that any provision, section, or sentence of this Agreement is held by a court to be unenforceable, the validity of the enforceable provisions shall not be adversely affected.

26. **Correspondence.** All notices required herein or any other correspondence pertaining to this Agreement shall be sent by regular, certified, overnight mail, or e-mail as follows:

Notice to CCAT:

Jane Williams  
CCAT

PO Box 845  
Rosamond, CA, 93560  
dcapjane@aol.com

Notice to LADWP:

Michelle Lyman  
Deputy City Attorney  
Los Angeles Department of Water and Power  
111 N. Hope Street, Room 340  
Los Angeles, CA 90012  
Michelle.lyman@ladwp.com

Notifications of communications shall be deemed submitted on the date that they are e-mailed, postmarked and sent by first-class mail or deposited with an overnight mail/delivery service. Any change of address or addresses shall be communicated in the manner described above for giving notices.

27. **Counterparts.** This Agreement may be executed in any number of counterparts, all of which together shall constitute one original document. Telecopied, scanned (.pdf), electronic and/or facsimiled copies of original signature shall be deemed to be originally executed counterparts of this Agreement.

28. **Assignment.** This agreement cannot be assigned.

29. **Modification of the Agreement:** This Agreement, and any provisions herein, may not be changed, waived, discharged or terminated unless by a written instrument, signed by the Settling Parties.

30. **Full Settlement.** This Agreement constitutes a full and final settlement of this matter.

31. **Integration Clause.** This is an integrated Agreement. This Agreement is intended to be a full and complete statement of the terms of the agreement between the Settling Parties and expressly supersedes any and all prior oral or written agreements covenants, representations and warranties (express or implied) concerning the subject matter of this Agreement.

32. **Authority.** The undersigned representatives for CCAT and LADWP each certify that he/she is fully authorized by the Settling Party whom he/she represents to enter into the terms and conditions of this Agreement.

The Settling Parties hereby enter into this Agreement.

CALIFORNIA COMMUNITIES AGAINST TOXICS  
By: Jane Williams  
Jane Williams, Executive Director

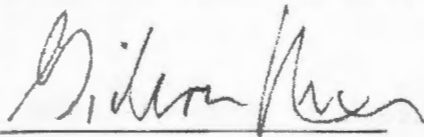
LOS ANGELES DEPARTMENT OF WATER AND POWER

By: Marcie Edwards

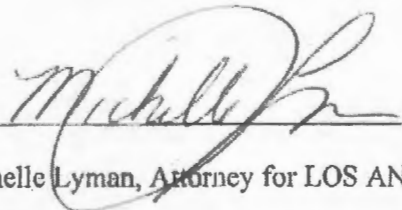
Marcie Edwards, General Manager

AUTHORIZED BY RES. 016 '04  
JAN 05 2016

APPROVED AS TO FORM AND SUBSTANCE:

By: 

Gideon Kracov, Attorney for CALIFORNIA COMMUNITIES AGAINST TOXICS

By: 

Michelle Lyman, Attorney for LOS ANGELES DEPARTMENT OF WATER AND POWER

APPROVED AS TO FORM AND LEGALITY  
MICHAEL N. FEUER, CITY ATTORNEY

DEC 30 2015

BY   
MICHELLE LYMAN  
DEPUTY CITY ATTORNEY

## EXHIBIT A





# STORMWATER CAPTURE MASTER PLAN

AUGUST 2015

Geosyntec<sup>®</sup>  
consultants

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# EXECUTIVE SUMMARY

The City of Los Angeles Department of Water and Power (LADWP) is responsible for providing the City of Los Angeles (City) with a safe and reliable supply of water for residential, commercial, governmental, industrial, and institutional uses. Since the early 1900s, the City has supplied water from a variety of sources. Today, the City's water comes from the Owens Valley via the Los Angeles Aqueduct; purchased water from the Metropolitan Water District of Southern California (MWD) imported from Northern California via the California Aqueduct and the Colorado River via the Colorado River Aqueduct; and several local water sources including groundwater, recycled water, and conservation.

Future water supplies from distant sources are becoming more restricted and less reliable. Environmental commitments, periods of dry years, low snow pack, and judicial decisions have all contributed toward significant cuts in imported supplies. These threats and the need for action were recently highlighted in the Mayoral Directive Number 5 which calls for a 20% reduction in the City's fresh water use by 2017 and a 50% reduction in LADWP's purchase of imported potable water by 2024. To ensure a safe and reliable water supply for future generations of Angelenos, one of the City's key strategies is to increase the local water supply and decrease the need to purchase imported water. However, in large part due to urbanization, the majority of precipitation that falls onto the City flows into storm drains and out to the ocean. In light of these conditions, stormwater is an increasingly viable supply.

Capturing and using stormwater on-site can offset potable water demand. Capturing and

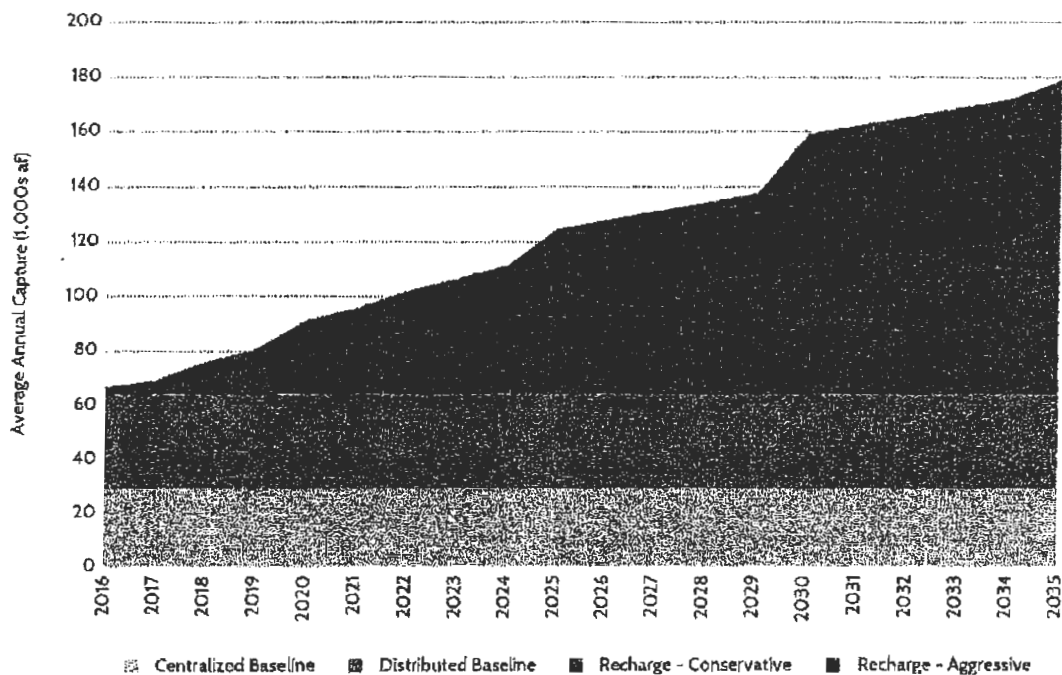


Figure ES-1. Baseline and Potential Stormwater Capture Within the City of Los Angeles

## STORMWATER CAPTURE MASTER PLAN

infiltrating stormwater into subsurface groundwater aquifers increases local groundwater reserves. Both infiltration and capture for direct use enhance the reliability of the City's water supply. Projects to capture and conserve stormwater runoff comprise an important component of the City's water supply portfolio. The City is a part of a complex multi-jurisdictional region. As such, implementing effective and comprehensive local stormwater capture projects involves a collaborative effort between several agencies including LADWP, the Los Angeles County Flood Control District (LACFCD), the Los Angeles Bureau of Sanitation (LASAN), the Los Angeles Bureau of Street Services (LABSS), the Los Angeles Bureau of Engineering (LABOE), and the US Army Corps of Engineers (USACE). Additionally, LADWP partners with many community-based organizations to leverage their relationships with the residents of the City. Working together on projects that have multi-benefits for multiple agencies allows for the opportunity to cost-share and reduces the financial burden.

Currently LADWP and its partners actively capture and recharge approximately 29,000 acre-feet per year of stormwater, along with another 35,000 acre-feet per year infiltrating into the potable aquifers through incidental recharge. This water source represents approximately 10% of the City's annual water demand. Through the work on LADWP's Stormwater Capture Master Plan (SCMP), it has been demonstrated that an additional 68,000 to 114,000 acre-feet per year could be realistically captured through a suite of projects, programs, and policies over the next 20 years (Figure ES-1). Potential projects and programs to capture additional stormwater are particularly important to consider, not only because of the increasing economic value of this water supply but also because stormwater projects address a host of other challenges faced by the City. Some of these challenges include reducing dependence on imported

water, meeting federal water quality mandates, providing enhanced flood protection, reducing peak flows in the region's waterways, providing green space for habitat and recreation, and providing climate mitigation and adaptation opportunities. Through the process of developing the SCMP, LADWP and the SCMP Team, including Geosyntec Consultants and TreePeople<sup>1</sup>, evaluated and characterized the role that increased centralized and distributed stormwater capture can play in the City's water supply portfolio, while also providing ancillary benefits to help meet some of these other important challenges faced by the City.

## CONTEXT

LADWP's Water System's mission is to provide its customers with safe, reliable, high quality, and reasonably priced water service in a transparent and environmentally responsible manner. LADWP currently meets over 85 percent of annual water demand from sources hundreds of miles away through the Los Angeles Aqueducts and water purchased from MWD that originates in the watersheds of the Bay Delta and the Colorado River. Flows from the Bay Delta and the Los Angeles Aqueduct are currently at or near historic lows and all of these sources face significant challenges going into the future, including:

- Allocations and pumping restrictions threaten supplies from the Bay Delta and Colorado River;
- Owens Lake dust mitigation reduces supply from the Los Angeles Aqueduct;
- Climate change threatens to reduce supplies from all water sources due to changes in precipitation patterns and

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1. TreePeople has been a core partner and pro bono adviser on the SCMP since its inception, helping to launch the Plan and working collaboratively with LADWP and Geosyntec to guide the process.

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increased evapotranspiration caused by rising temperatures; and

- The energy needed to transport water from such distances is expected to become increasingly costly and the resulting carbon footprint of such energy use is a significant concern.

LADWP's long term goal is to be drought and climate resilient and it understands that in order to maintain reliability, actions must be taken before these threats are fully realized. Imported water threats, combined with anticipated regional population growth, demonstrate a clear need for the development of local water supplies to maintain water supply reliability.

LADWP has already begun to reduce imported water use through aggressive water conservation programs and is developing new local water resources by increasing recycled water usage, initiating clean-up of local groundwater resources, and working to increase stormwater capture. LADWP's 2010 Urban Water Management Plan (UWMP) outlines a general strategy for reducing reliance on MWD water by nearly 50% by 2035, by increasing these local supplies. Stormwater capture is a critical piece of this strategy.

### THE MASTER PLANNING PROCESS

The SCMP is a document that outlines LADWP's strategies over the next 20 years to implement stormwater projects and programs, and to cooperate with others on projects in the City that will contribute to more reliable and sustainable local water supplies. The SCMP is a planning document. Projects and programs recommended in the SCMP require approval by the LADWP Board of Commissioners on a case-by-case basis. Similarly, the recommendations of the SCMP are part of

a broad input to decision-makers regarding future courses of action.

The goals of the SCMP are to quantify stormwater capture potential and identify new projects, programs, and policies to significantly increase stormwater capture for water supply within the 20-year planning period. Projects and programs were prioritized based on water supply criteria, though other benefits of stormwater capture and partnership opportunities were considered as part of the development process. The SCMP also presents costs and benefits for proposed projects, programs, and policies, while defining timing and key milestones. The SCMP was developed in close coordination with the LACFCD/United States Bureau of Reclamation (USBR) Basin Study, and LASAN's Enhanced Watershed Management Plans (EWMPs) as both efforts are closely related, and offer important opportunities to leverage the resources of each agency.

### PUBLIC OUTREACH

Public participation was an important part of the development of the SCMP to ensure that the plan has the support of key stakeholders and is integrated with other regional stormwater management efforts. Investing in public awareness and approval of the SCMP during its development facilitates its future implementation and broad acceptance as an essential part of ensuring a sustainable local water supply. As such, public outreach activities were ongoing throughout the SCMP development process, and included outreach with local and state elected officials, regulators, entities involved in research or implementation programs related to stormwater capture, the Technical Advisory Team (TAT)—composed of internal LADWP and City staff as well as representatives from other government agencies with planning-level interests that overlap with the SCMP planning process—key regional stakeholders (including

## STORMWATER CAPTURE MASTER PLAN

leaders of environmental, neighborhood, civic, and community organizations), and the general public. Table ES-1 summarizes public outreach events conducted over the course of the SCMP development. Figure ES-2 depicts the significant public participation enjoyed throughout the planning process.

*Table ES-1. Public Outreach Events Conducted Throughout the SCMP Development Process*

Public Outreach Event	Topic	Date(s)
TAT #1	Stormwater capture potential modeling approach	9.16.2013
Key Stakeholder Meeting #1 - All Key Stakeholders	Introduction to SCMP	10.21.2013
TAT #2	Stormwater capture potential	2.24.2014
General Public #1	Introduction to SCMP, potential for stormwater capture, and solicitation of project/program ideas	3.26.2014
Key Stakeholder Meeting #2 - GreenLA	Stormwater capture potential preliminary results and solicitation of project/program ideas	3.26.2014
Key Stakeholder Meeting #3 - Prop O Citizens Oversight and Advisory Committee (COAC)	Introduction to SCMP and preliminary modeling results	5.19.2014
Key Stakeholder Meeting #4 - UCLA	Coordination between SCMP and UCLA/Colorado School of Mines	7.22.2014
TAT #3/Key Stakeholder Meeting #5	Distributed stormwater capture program unit response curves	10.9.2014
General Public Meeting #2a	Presentation of interim report	1.22.2015
General Public Meeting #2b	Presentation of interim report	1.29.2015
TAT Meeting #4/Key Stakeholder Meeting #6	Implementation strategies	3.25.2015
TAT/Key Stakeholder "Office Hours"	Implementation rates	6.1.2015, 6.4.2015
General Public Meeting #3	Presentation of final SCMP	6.25.2015
EWMP Coordination Meetings	Coordination between plans	Multiple
Basin Study Coordination Meetings	Coordination between plans	Multiple
Meeting with The River Project	Project update and collaboration	1.14.2014
Meeting with Arid Lands Institute	Project update and collaboration	3.21.2014
Presentation at H2O Conference	Informational presentation	5.28.2014
Presentation to Studio City Residents Association	Project update	7.8.2014
Presentation to National Research Council	Informational presentation and project update	7.31.2014

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*Table ES-1. Public Outreach Events Conducted Throughout the SCMP Development Process*

Public Outreach Event	Topic	Date(s)
Meetings with LAUSD	Project update	10.2.2014, 10.15.2014
Presentation at IRWMP Leadership Committee Meeting	Informational presentation and project update	10.22.2014
Presentation at the Westchester Rotary Club	Project update	12.17.2014
Presentation to Upper LA River Area IRWMP Group	Informational presentation and project update	1.21.2015
Presentation at Southern California Water Committee Meeting	Informational presentation and project update	1.22.2012, 6.25.2014
Presentation to LA Neighborhood Council Coalition	Project update	2.7.2015
Presentation at American Water Resources Association Conference	Informational presentation	3.30.2015
Briefings with City Council Members, EPA Region 9 Administrator, RWQCB, and SWRCB	Informational presentation and project update	Multiple



*Figure ES-2. Public Outreach Event "General Public #1"*

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### CURRENT CAPTURE

Los Angeles has a long history of managing stormwater runoff. For most of its history, the primary objective of "stormwater management" has been to control catastrophic flooding. To this end, a regional flood control system was developed consisting of conveyances, impoundments, spreading grounds, flood control basins, and debris basins.

Over the past few decades, as imported water has become more expensive, less reliable, and more susceptible to limitations, stormwater flowing to the ocean has been recognized as an increasingly valuable resource for the region. As a result, existing flood control facilities and individual parcels have been and continue to be retrofitted, and new large-scale facilities are being developed to infiltrate stormwater for groundwater recharge. In the past 40 years,

stormwater capture in centralized facilities has increased 50 percent (Figure ES-3). Modeling conducted as part of this study showed that on average, the centralized facilities that exist today capture nearly 30,000 acre-feet of stormwater annually. LADWP has several new centralized projects funded and underway, and many more identified that will significantly increase this capture potential.

In tandem with the development of centralized capture facilities, LADWP is also contributing to the implementation of distributed capture projects. LADWP understands that the opportunities for centralized capture projects are limited due to their space requirements, and acknowledges the important benefits provided by distributed capture projects. While there are many examples of distributed projects both planned and in service, their contribution toward total aquifer recharge is

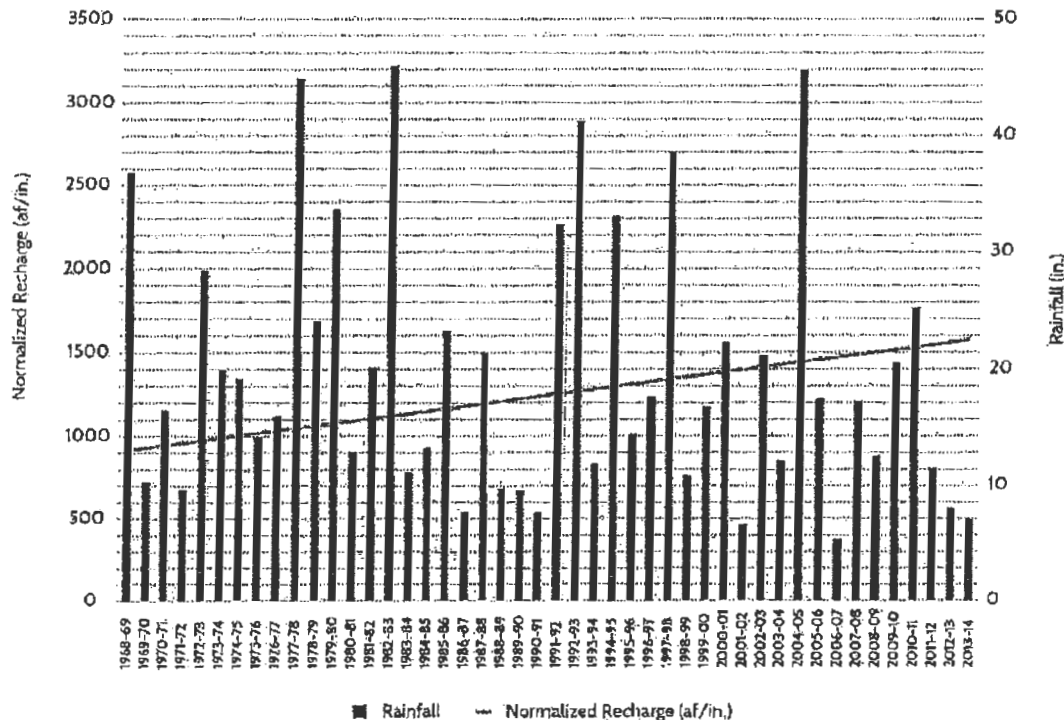


Figure ES-3. Increased Efficiencies in Centralized Facility Capture Over the Past Four Decades



## STORMWATER CAPTURE MASTER PLAN

relatively minor due to the limited capture capacity of each individual project. For distributed projects to make a more significant contribution to groundwater recharge, these groundbreaking pilot projects can be implemented on a programmatic basis across the City.

While distributed capture projects do not currently provide significant recharge volumes, continuous simulation modeling performed for the SCMP showed that 63,000 acre-feet per year of distributed infiltration is currently occurring incidentally via pervious surfaces throughout the City. However, only 35,000 acre-feet per year of this infiltrated water is being recharged into water supply aquifers. The remaining 28,000 acre-feet per year is infiltrating into soils above confined aquifers. Water currently being infiltrated incidentally above confined aquifers does not constitute an existing supply, though it could potentially contribute to LADWP's water supply portfolio

if LADWP established pumping, treatment, and distribution in the future.

### FUTURE SCENARIOS

In developing the SCMP, two scenarios—Conservative and Aggressive—were considered to create an “envelope” of the range of potential future outcomes (Figure ES-4). These two scenarios reflect broader conditions outside the direct control of LADWP that could impede or accelerate stormwater capture. Regardless, swift, significant, and sustained action on the part of LADWP and its partners is a significant part of realizing either scenario.

### LONG-TERM STORMWATER CAPTURE POTENTIAL

Prior to developing targets for the SCMP, the long-term stormwater capture potential was estimated to refine estimates developed in previous studies, and to better understand the realistic potential for stormwater capture and

## CONSERVATIVE

- Some increase in political, financial, and social prioritization
- Some increase in availability of funding
- Some increase in public awareness
- Some increase in will to push stormwater agenda



## AGGRESSIVE

- Significant and sustained political, financial, and social prioritization
- Significant and sustained availability of funding
- Significant and sustained public awareness
- Significant and sustained will to push stormwater agenda



Figure ES-4. Aggressive Versus Conservative Scenario



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serve as a context for developing the SCMP. These stormwater capture estimates included both centralized and distributed capture that might be implemented by the year 2099 (Figure ES-5).

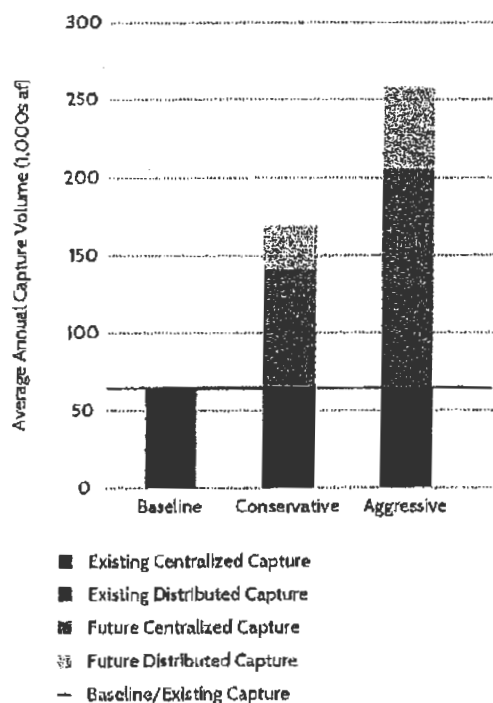


Figure ES-5. Potential Stormwater Capture by 2099

## STORMWATER CAPTURE ALTERNATIVES

The SCMP considered both centralized and distributed stormwater capture projects. Centralized capture projects are those that capture generally more than 100 acre-feet per year and are unique to a specific location and opportunity. Distributed capture projects are smaller (less than 100 acre-feet per year) and have similar designs, allowing them to be implemented programmatically across the City.

For centralized projects, a comprehensive list was compiled from a review of previously

implemented stormwater capture studies, LADWP's current list of centralized projects, new project concepts, and input from the TAT, key stakeholders, and the general public. These centralized stormwater capture alternatives were identified for potential inclusion in the final SCMP. Potentially feasible alternatives were evaluated and scored based on criteria developed by the SCMP Project Team, including water supply benefit, cost, ownership, compatible uses/partnership opportunities, and operating costs.

To identify distributed stormwater capture program opportunities and evaluate their costs and benefits, an emphasis was placed on flexibility such that the widest possible variety of programs could be evaluated based on their implementation in different areas throughout the City to guide development of the final SCMP Implementation strategy. Table ES-2 lists stormwater capture programs grouped into program types.

Table ES-2. Distributed Program Alternatives

Project	Program
On-site Infiltration	Residential Rain Garden Program
Green Streets	Commercial Green Street Program
Subregional Infiltration	Neighborhood Recharge Facility Program
On-site Direct Use	Residential or Commercial Cistern Program
Subregional Direct Use	Park Subsurface Storage and Irrigation Program
Impervious Replacement	Impervious Surface Replacement Program

## IMPLEMENTATION POTENTIAL

To determine the stormwater capture potential for the City, centralized and distributed projects and programs were identified, and

## STORMWATER CAPTURE MASTER PLAN

implementation rates and schedules were established with extensive input from LADWP and SCMP stakeholders.

For centralized projects, implementation phasing was developed by analyzing the status of each project, understanding the technical complexity of each project, determining the level of permitting required, and assessing the individual project costs and partnership opportunities. For distributed capture programs, program type alternatives were developed by creating categories based on different combinations of project attributes, including tributary sources (either on-site or off-site areas), land use type (private property, public property right of way), and use of captured water (aquifer recharge or direct use). This categorization resulted in a total of five feasible program categories along with several subcategories (Table ES-3).

*Table ES-3. Distributed Program Categories*

Program Category	Subcategory
On-Site Infiltration/Direct Use	Single Family Residential
	Multi-Family Residential
	Commercial
	Industrial
	Educational
	Institutional
Green Street Programs	Commercial Streets
	Residential Streets (Parkway Retrofits)
	Street Ends at Rivers (Rio Vistas)
Subregional Infiltration	N/A
Subregional Direct Use	N/A

A detailed analysis was performed on these programs to determine their costs and potential benefits, including capture volume, pollutant reduction, increased green space, and peak flow reduction. Results from this analysis helped guide the establishment of potential implementation rates for each program over the SCMP planning period.

Using centralized and distributed implementation rates, stormwater capture potential (in acre-feet per year) was developed for the Conservative and Aggressive Scenarios, at 5, 10, 15, and 20 years—the years 2020, 2025, 2030, and 2035 (Table ES-4). This table indicates that LADWP could nearly double the existing capture in centralized facilities over the next 20 years, and through participation in programmatic implementation of distributed solutions, provide an even greater amount of new capture through distributed capture projects. In total, LADWP could potentially realize increased local water supply through all of the planned uses of stormwater by 68,000 to 114,000 acre-feet per year within 20 years.

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Table ES-4. Stormwater Capture Potential at 5, 10, 15, and 20 Year Milestones

		Conservative				Aggressive			
		2020	2025	2030	2035	2020	2025	2030	2035
Recharge Baseline	Baseline-- Incidental	35	35	35	35	35	35	35	35
	Baseline-- Centralized	29	29	29	29	29	29	29	29
	Baseline Subtotal	64	64	64	64	64	64	64	64
Recharge Potential	Centralized Facilities	9	22	25	35	15	29	48	51
	Distributed Infiltration	5	14	22	31	11	27	41	56
	Recharge Subtotal	14	36	47	66	26	56	89	107
Direct Use Potential	Distributed Direct Use		1	1	2	1	4	6	7
<b>Baseline Subtotal</b>		<b>64</b>	<b>64</b>	<b>64</b>	<b>64</b>	<b>64</b>	<b>64</b>	<b>64</b>	<b>64</b>
<b>Potential Subtotal</b>		<b>14</b>	<b>37</b>	<b>48</b>	<b>68</b>	<b>27</b>	<b>60</b>	<b>95</b>	<b>114</b>
<b>Total</b>		<b>78</b>	<b>101</b>	<b>112</b>	<b>132</b>	<b>91</b>	<b>124</b>	<b>159</b>	<b>178</b>

There are multiple combinations of projects and program types that can be implemented to capture the potential volumes described. However, depending on multiple factors, the cost-effectiveness (or life cycle cost, in dollars per acre-foot) of these projects and programs varies considerably. These factors include capture volume, tributary area, capital costs, operations and maintenance requirements, among others. Cost-effectiveness varies within and among the different projects and program types (Figure ES-6).

As shown, centralized projects can provide the greatest opportunities for the most cost-effective means of capturing stormwater for water supply. Often, this is because of unique project factors, such as land ownership, already in place. Subregional infiltration projects, as part of a programmatic implementation plan, also show great promise across a wide variety of conditions, and recharge water into the local aquifers in a tight range of costs per acre-foot. Green Streets, on-site infiltration, subregional direct use, and on-site direct use also provide water supply potential at a lower price range yet warrant partnering entities.

### VALUE OF RECHARGED/DIRECT USE WATER

Implementation of the centralized facilities and distributed programs may require funding, at least in part, by LADWP. Any proposal to use ratepayer monies to fund stormwater projects must be carefully evaluated. It is important to consider that expenditures on these projects and programs result in the development of a resource that has economic value to LADWP. The value of captured water to LADWP consists of the avoided cost of purchased water and the value of

## STORMWATER CAPTURE MASTER PLAN

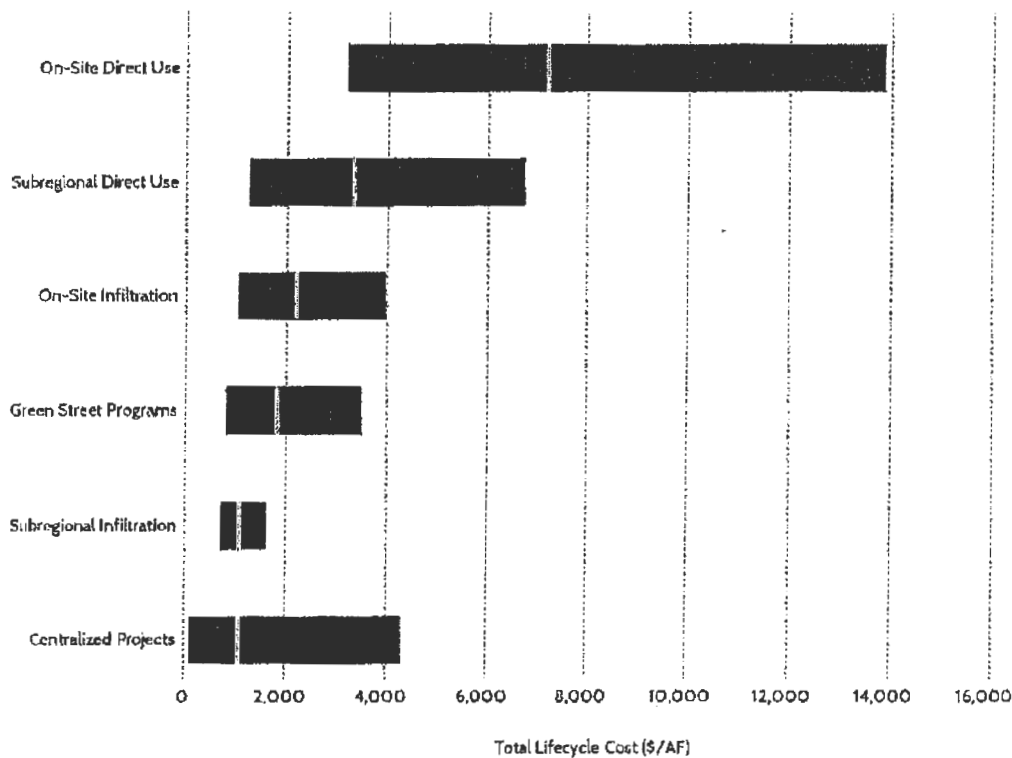


Figure ES-6. Cost-Efficiency of Projects and Program Types

increased water supply reliability resulting from development of local water resources. Analysis of MWD water costs and the value of local resources through its local resource program (LRP), including predicted escalation over time and using the value at the mid-point of the planning period, showed that stormwater projects that recharge water into groundwater aquifers, and thus avoid purchase of Metropolitan Water District (MWD) Tier 1 untreated water, can be considered to have a value of \$1,100 per acre-foot of water generated over the life of the project (Figure ES-7).

Direct use projects, which can avoid the purchase of MWD Tier 1 treated water, can be considered to have a value of \$1,550 per acre-foot (Figure ES-8).

If the cost of a project or program is less than the value of the captured water it provides, then implementation of this project would be considered "good business" and would be defensible to the ratepayer. Projects or programs that cost more than the value of the water they provide may still be worth implementing when other project benefits are considered and other beneficiaries contribute to the cost of implementation.

Based on the analysis of identified project and program alternatives, each project/program category contains individual projects that could be implemented for a cost that is less than or equal to their value to LADWP (with the exception of the onsite direct use program). And each project/program category also contains projects with costs that exceed their value to LADWP in terms of water supply benefit where partnerships can close this

## STORMWATER CAPTURE MASTER PLAN

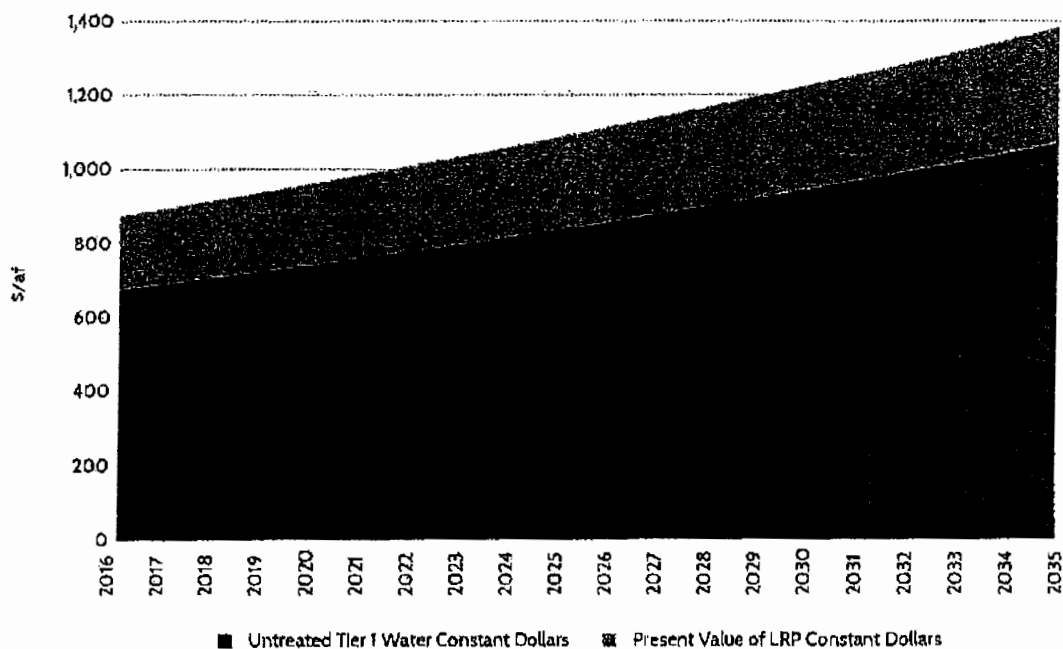


Figure ES-7. Value of Recharged Water to LADWP

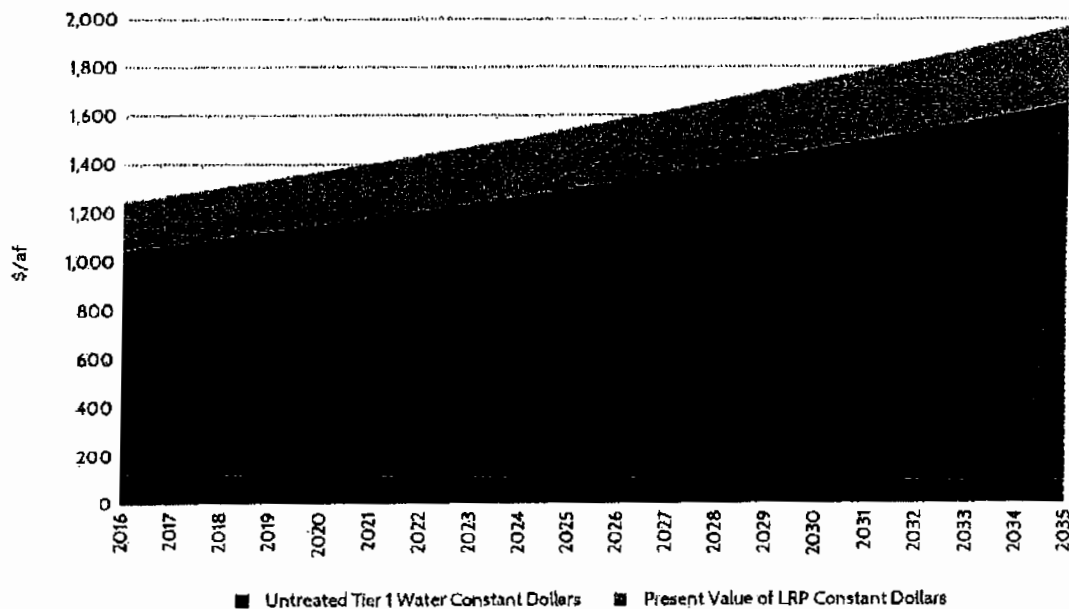


Figure ES-8. Value of Direct Use Water to LADWP

## STORMWATER CAPTURE MASTER PLAN

funding gap. Though there is often a sound business case for LADWP to implement projects independently, their implementation approach should also include a strategy for coordination with other agencies to cost-effectively implement projects and programs.

### FUNDING STRATEGIES

LADWP could contribute funds to projects in accordance with the water supply and local supply values described above. Recognizing the capital-intensive nature of many of these projects, a variety of strategies for debt financing could be employed. These strategies include issuance of debt by LADWP, but also debt issuances by other entities, including low interest loans from State and Federal sources, and cooperative pledges of LADWP funds toward repayment of debt issuances by other entities including public agencies, property owners and private sector entities. New forms of debt issuance may include formation of "Joint Powers of Authority" (JPA) or special assessment districts, in which LADWP funds could be combined with new sources of revenue to support new debt vehicles. In this regard, the SCMP includes a number of recommendations on how LADWP's avoided costs and the potential LRP subsidy from MWD can become significant sources of revenue pledged toward operating costs, capital costs, and debt repayment. It is also recommended that LADWP consider potential financing from Public Private Partnership opportunities.

LADWP can also serve as an important entity to receive grant monies for implementation of stormwater capture. Grants may include funds from the Water Quality, Supply and Infrastructure Improvement Act, and new sources of grant monies may become available. LADWP could help ensure that these grant opportunities are effectively realized over time. Optimizing grants and leveraging LADWP funding will require careful coordination with

other entities including LACFCD, LASAN (through the EWMP process), and others.

For distributed projects, LADWP may also offer debt financing vehicles to projects that allow consumers to reduce their use of LADWP's water to encourage these projects without additional cost to other ratepayers. For distributed projects that would result in recharge benefit to LADWP, new incentive programs including grants, purchase agreements and financing would be offered. Also, LADWP would likely purchase water from a number of projects sponsored by other public agencies as a form of financial contribution to projects that are sponsored for other purposes.

### IMPLEMENTATION RECOMMENDATIONS

Implementation of centralized and distributed projects and programs, and hence increased stormwater capture over the past several decades (Figure ES-3), is directly attributable to LADWP's growing focus on stormwater capture as a means of augmenting local water supplies. These increasing efforts toward identifying projects, welcoming project partnerships, and providing funding critical to the successful and timely implementation of projects is readily apparent in the increased role stormwater plays in the City's water supply portfolio. Even with LADWP's and their partners' sustained efforts, there remains significant untapped potential for additional capture from both centralized and distributed projects. Realizing this potential requires new strategies to allow projects and programs to be implemented at an accelerated pace.

### GUIDING PRINCIPLES

The SCMP provides planning level guidance on the projects and programs that LADWP should implement or support to increase stormwater capture. However, as this plan gets

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implemented, additional decisions will need to be made to select and prioritize specific projects. To guide LADWP in making these decisions, specific attributes will be considered when evaluating individual projects. These are:

**Sound Planning.** LADWP is conservative in its approach to water supply planning, meaning that it errs on the side of more water and more storage. LADWP anticipates future regulations and policies, and how they may impact water supply planning. LADWP collaborated with the community and stakeholders throughout the development of the SCMP, and will continue to collaborate when proposing investments.

**Appropriate Investment/Cost-Effectiveness.** LADWP is committed to its ratepayers to ensure that it only implements projects that make good business sense. Investments must be based on clearly defined planning, reliability, environmental, and financial standards. However, while some projects may at first appear to have a high dollar per acre-foot price tag, by entering into partnerships with other agencies and co-investing in multi-benefit projects, LADWP may be able to reduce its share and make a defensible case for implementation of the project.

**Reliable and Resilient Water Supply and Service.** LADWP expects to continue to meet 100% of the demand 100% of the time. To accomplish this, LADWP needs to diversify its water supply portfolio in order to become drought and climate change resilient. While some individual projects may initially appear more costly, their additional expense in the near term may be warranted if they provide LADWP with a diversified water supply portfolio that is resilient in the face of anticipated threats to long-term water supply reliability.

**Multiple Benefits.** Though cost-effectiveness is an important metric to be used for evaluating a project, projects with multiple benefits have an advantage over projects that only

provide water supply benefits, even though their total cost per acre-foot of captured water may be higher. LADWP looks to pursue multi-beneficial projects that address not only water supply, but water quality, localized flood protection, and open space. Multi-beneficial projects present the opportunity for collaboration and cost sharing, thus improving the cost-effectiveness of a project when viewed strictly as costs to LADWP.

**Transparency and Collaboration.** LADWP's goal is to provide easy-to-access information on policy decisions, outreach activities and follow-up, and governance. LADWP encourages dialogue with policy makers, community leaders, and the general public regarding LADWP standards. Not only does collaboration potentially reduce LADWP's share of project costs, collaboration among agencies also works toward different goals that improve the City's overall efficiency in meeting all of its goals, in that there is less redundancy and/or conflict between different agency projects.

Stormwater capture projects have the potential to provide non-water supply benefits (Table ES-5). Projects that include multiple additional benefits should be prioritized over those that provide few or no additional benefits. Collaboration should be a fundamental element of all work associated with implementation of the SCMP. LADWP should work closely with other City agencies to develop coordinated strategies for meeting overlapping goals.

Consistent with being multi-beneficial and collaborative, stormwater capture projects should also be prioritized opportunistically. While a given project may not be at the top of LADWP's priority list in a given moment, it may nevertheless be appropriate to implement if there are time-limited circumstances that would work in favor of said project. For instance, if a green street project has been



## STORMWATER CAPTURE MASTER PLAN

identified for future implementation and that street is slated to be repaired before the green street project is implemented, it may be worthwhile to adjust the timeline of implementation to coincide with the street repair. This not only has the potential to reduce project costs and improve the environmental sustainability of the project, but could also reduce disruption to the neighborhood and increase public goodwill for the project.

*Table ES-5. Potential Non-Water Supply Benefits of Stormwater Capture*

Category	Potential Benefits of Stormwater Capture Project
Environmental	Flood protection
	Water Quality
	Habitat
	Heat Island
	Climate adaptation/ mitigation
Infrastructure	Street repair
	Facility O&M
	River Revitalization
Social	Recreation
	Neighborhood revitalization
	Public health
Economic	Job creation

### RECOMMENDED IMPLEMENTATION APPROACHES

The SCMP creates a vision for implementation of a wide variety of projects with multiple benefits. To implement all of the programs presented in the SCMP, a variety of approaches must be employed. Although LADWP will take the lead on implementation of projects and programs most beneficial from a water supply perspective, the projects and programs proposed in this plan are not expected to be implemented solely by LADWP. There are a variety of responsible parties who may direct

and/or fund implementation, and there are different approaches for implementation that may be employed. Each project and/or program may be most suitably implemented through one or more of these approaches.

Four general approaches proposed for implementation of projects and programs described in this document are summarized below, including key recommendations for implementing these approaches.

#### 1. LADWP-Led Implementation

For projects on land owned by LADWP that are highly cost-effective initiatives and contribute significantly to water supply, LADWP should accept leadership responsibilities and work to increase efficiency of implementation. For these projects the recommended approach focuses on maximizing participation by private-sector expertise in project development and implementation, but includes placing specific responsibilities on LADWP for stewardship of these new initiatives. Projects suitable for this approach include several of the centralized projects described in this document, as well as highly cost-effective subregional and green street projects.

- Projects that could be implemented by LADWP on properties and facilities owned by LADWP or partnering entities should employ performance specifications and design-build delivery to avoid delays of the conventional design-bid-build projects.
- LADWP should explore methods of employing private sector development expertise to implement some of the most cost-effective and developmentally complex centralized projects and sub-regional programs identified in the SCMP. This would include developing RFPs requesting information and proposals from the



## STORMWATER CAPTURE MASTER PLAN

private sector and public agencies to develop and implement the projects and programs identified.

- LADWP has already established a method for identifying and prioritizing centralized projects and key distributed projects. However, to achieve the implementation rates of distributed projects called for in this plan, LADWP must develop a systematic approach to identifying subregional projects cost-effective enough to warrant LADWP implementation. Analysis performed for the SCMP should be used to help focus in on areas likely to contain project opportunities.
- On all projects led by LADWP, LADWP should work to include project partners where appropriate.

### **2. Coordination with Other Agencies and Coordination with EWMPs**

Considering the multi-benefit nature of stormwater capture projects, it is understood that many projects identified in this plan would be implemented by other agencies, and LADWP should participate in these projects wherever they provide cost-effective water supply benefits. Approaches for coordination with other agencies may include new forms of governance to facilitate funding and implementation. It is recommended that LADWP:

- Consider formation of a JPA or other form of cooperative governance with LACFCD to create a focused organization to speed implementation of cost-effective centralized projects.
- Develop standard terms for participation in projects sponsored by other public agencies to contribute to project costs consistent with the water supply benefits of the projects, and

encourage other beneficiary agencies to do the same.

- Monitor the projects of other agencies to identify opportunistic stormwater capture projects in which they may participate.
- Offer grants, purchase agreements, and/or financing to projects that capture stormwater and groundwater recharge basins from which LADWP can recover the groundwater.
- Work with Los Angeles Unified School District (LAUSD) to develop a program to allow for the installation of subregional capture projects on their campuses where appropriate.
- Continue its participation in the City's EWMPs, including sharing data and maps to allow for comparison of prioritized project areas, thus facilitating identification of opportunities for project collaboration.
- Contribute funds to projects identified in the EWMPs that generate new water supplies consistent with the benefits of those projects.
- Work with other City agencies to explore the formation of an Enhanced Infrastructure Financing District (EIFD) to facilitate financing for City projects which have water supply and other benefits such as water quality improvements, open space, and flood protection.

### **3. Property Owner Implementation**

The approach for private properties involves creating incentives to empower property owners to implement projects without over investment of ratepayer funds, by offering financing with cost recovery. It is recommended that LADWP:

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- Offer grants, purchase agreements, and/or financing to on-site projects and subregional projects installed on private property that capture stormwater and recharge groundwater basins in which LADWP can recover the groundwater. Grant amounts should be based on the lifetime capture potential of a given project and the value of the recharged water.
- Offer loans to customers to help finance projects that would capture stormwater and beneficially use the water to reduce potable demands.

### **4. Regulated Implementation**

Many projects will be implemented through development ordinances and statewide policies. LADWP should maximize the stormwater capture benefit obtained through these means by working with policy makers to advise on sound policy from a stormwater capture perspective. It is recommended that LADWP

- Work with policymakers to implement better enforcement of the LID ordinance and cooperate in the development of an improved LID ordinance and an Improved Sustainable Streets Ordinance.
- Offer support for a retrofit ordinance that would require stormwater capture projects to be installed on existing properties or upon resale of a property.

### **ADDITIONAL RECOMMENDATIONS**

Achieving the targets laid out in this plan requires a broad effort aimed at supporting the general landscape of stormwater capture. To this end, it is recommended that LADWP

- Work with the water-rights panel in the Central and West Coast Basins seeking to lead a regional effort to solicit projects and implement water

augmentation projects within the Central and West Coast Basins and offer participation rights to water rights holders in the groundwater basins that contribute. These include efforts to recharge the Los Angeles Forebay with new stormwater sources.

- Ensure that the clean-up efforts in the San Fernando Basin proceed to continue and improve LADWP's cost-effective access to the water supply and storage resources of that groundwater basin.
- Continue engagement with the public to educate and solicit input on new programs to capture stormwater, including opportunities for individual property owners to implement on-site stormwater capture projects and programs.
- Develop a comprehensive program to receive the LRP from MWD for stormwater capture projects.
- Optimize existing grant sources and monitor potential new grant opportunities to maximize receipt of grant monies for stormwater capture projects.
- Develop procedures to measure new stormwater capture to help secure funding and realize benefits from stormwater capture in major groundwater basins.
- Help develop more refined maps of areas where stormwater recharge projects may have adverse impacts due to expansive/contractive soils or liquefaction potential and coordinate with the City of Los Angeles Department of Building and Safety (LADBS) on procedures to approve local projects to retain and recharge stormwater.
- Consider the development of a programmatic environmental document

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to allow for a more streamlined approach to implementing the recommendations made above.

spaces for habitat and recreation, and reduced peak flows in the region's waterways.

### CONCLUSION

With increased pressure on traditional water resources, LADWP desires to augment its local water supply portfolio to further its mission of providing a safe, reliable, and environmentally sensitive water supply for the City of Los Angeles. Local stormwater has historically contributed a significant amount of water for the City. LADWP and its partners actively recharge the local groundwater aquifers with approximately 29,000 acre-feet per year, and another 35,000 acre-feet per year is recharged into those same aquifers by incidental infiltration through mountain front zones and unpaved surfaces. Now, with the SCMP development process complete, results show that through the sustained implementation of a suite of centralized projects and the adoption of distributed programmatic approaches, an additional 68,000 to 114,000 acre-feet per year of stormwater for water supply could be realized in the next 20 years. The approximate value of this water to LADWP over the same 20-year time period is \$1,100 per acre-foot for recharged water and \$1,550 per acre-foot for directly used water, which represents a sound investment in the City's future water supply portfolio.

To achieve these goals, sustained effort on behalf of LADWP and its partners, in particular LACFCD, LASAN, and other City agencies, is required. These efforts include diligent tracking of funding opportunities, increased integration of common functions between agencies with similar charges, and exploring creative new mechanisms of project implementation. As this plan to increase the capture of this valuable local water supply is realized, additional benefits to the City will be gained, including water quality improvements, improved green

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expenditures from approximately \$15,000,000 to \$25,000,000 for the Conservative Scenario and from approximately \$20,000,000 to \$35,000,000 for the Aggressive Scenario. Cost sharing opportunities for the near-term projects (within 5 years) are better understood and range from between 30% and 70% depending on the project and identified partners. Cost sharing opportunities for the mid-term to long-term projects (within 10, 15, and 20 years, respectively) are less understood and were assumed to focus closer to 50% of total project cost.

Table 10. Centralized Facilities: Conservative Scenario Implementation Schedule

Project	Increased Capture (af/yr)	Start Date	Date of Completion
Hansen Spreading Grounds Upgrade (completed)	2,100	2007	2013
Big Tujunga Dam Seismic Retrofit (completed)	4,500	2009	2012
Sheldon-Arleta Gas Management System (completed)	100	2009	2016
Arundo Donax Removal Project-Phase I (funded)	100	2015	2018
Tujunga Spreading Grounds Upgrade (funded)	4,200	2015	2017
Big Tujunga Dam Sediment Removal 2.3-4.4 Million Cubic Yards (funded)	500	2016	2021
Rory M Shaw Wetlands Park Project (Strathern)	590	2016	2019
Spreading Grounds Optimization	650	2018	2019
Valley Generating Station Stormwater Capture - Phase I	118	2018	2020
Whitnall Hwy Power Line Easement	110	2016	2018
Branford Spreading Basin Upgrade (funded)	597	2018	2019
Bull Creek Pipeline 60"-16,000' (funded)	3,000	2018	2020
Debris Basin Retrofit #1 (pilot)	100	2021	2024
Lopez Spreading Grounds Upgrade (funded)	480	2018	2019
Pacoima Dam Sediment Removal 3 MCY (funded)	700	2018	2024
Pacoima Spreading Grounds Upgrade	2,000	2017	2019
San Fernando Road Swales	130	2018	2019
Silver Lake Stormwater Capture Project	117	2020	2024
Van Norman Stormwater Capture-1050'	1,500	2019	2021
Whiteman Airport	80	2020	2022
Storm Drain Mining (Inject)	750	2022	2024
Storm Drain Mining (treat and use)	750	2023	2024
LA Forebay Recharge System-LAR Pilot	1,000	2025	2029

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*Table 10. Centralized Facilities: Conservative Scenario Implementation Schedule*

Project	Increased Capture (af/yr)	Start Date	Date of Completion
Old Pacoima Wash	1,000	2020	2024
Canterbury Power Line Easement	1,000	2030	2034
Arundo Donax Removal Project-Phase II	1,900	2022	2024
Debris Basin Retrofit #2	300	2025	2029
Hansen Dam Water Conservation Project	1,200	2022	2024
Lakeside Reservoir	238	2030	2034
North Hollywood Power Line Easement	750	2022	2024
Park Retrofit #2	500	2030	2034
East Valley Baseball Park	750	2022	2024
Van Nuys Airport	300	2025	2029
Whitsett Sports Fields Park Retrofit	750	2025	2029
Boulevard Pit Multiuse	5,000	2025	2034
LA Forebay Recharge System-Upper Ballona	600	2025	2029
Sepulveda Basin-Hansen SG Pipe Line 54"	3,000	2030	2034
Park Retrofit #3	500	2030	2034

*Table 11. Centralized Facilities: Aggressive Scenario Implementation Schedule*

Project	Increased Capture (af/yr)	Start Date	Date of Completion
Hansen Spreading Grounds Upgrade (completed)	2,100	2007	2013
Big Tujunga Dam Seismic Retrofit (completed)	4,500	2009	2012
Sheldon-Arleta Gas Management System	100	2009	2016
Arundo Donax Removal Project-Phase I (funded)	100	2015	2018
Tujunga Spreading Grounds Upgrade (funded)	4,200	2015	2017
Big Tujunga Dam Sediment Removal 2.3-4.4 MCY (funded)	500	2016	2021
Rory M Shaw Wetlands Park Project (Strathern)	590	2016	2019
Spreading Grounds Optimization	650	2016	2018
Valley Generating Station Stormwater Capture-Phase I	118	2016	2018
Whitnall Hwy Power Line Easement	110	2016	2018
Branford Spreading Basin Upgrade (funded)	597	2017	2018
Bull Creek Pipeline 60"-16,000' (funded)	3,000	2017	2019

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Table 11. Centralized Facilities: Aggressive Scenario Implementation Schedule

Project	Increased Capture (af/yr)	Start Date	Date of Completion
Debris Basin Retrofit #1 (pilot)	100	2017	2019
Lopez Spreading Grounds Upgrade (funded)	480	2017	2018
Pacoima Dam Sediment Removal 3 MCY (funded)	700	2017	2022
Pacoima Spreading Grounds Upgrade	2,000	2017	2019
San Fernando Road Swales	130	2017	2018
Silver Lake Stormwater Capture Project	117	2017	2019
Van Norman Stormwater Capture--1050'	1,500	2017	2019
Whiteman Airport	80	2017	2018
Storm Drain Mining (Inject)	750	2018	2019
Storm Drain Mining (treat and use)	750	2018	2020
LA Forebay Recharge System--LAR Pilot	1,000	2019	2023
Old Pacoima Wash	1,000	2019	2021
Canterbury Power Line Easement	1,000	2020	2021
Arundo Donax Removal Project--Phase II	1,900	2022	2024
Debris Basin Retrofit #2	300	2022	2024
Hansen Dam Water Conservation Project	1,200	2022	2024
LA Forebay Recharge System--LAR Full Scale	3,000	2022	2024
Lakeside Reservoir	238	2022	2024
North Hollywood Power Line Easement	750	2022	2024
Park Retrofit #2	500	2022	2024
East Valley Baseball Park	750	2022	2024
Van Nuys Airport	300	2022	2024
Whitsett Sports Fields Park Retrofit	750	2022	2024
Big T & Pacoima Dam to LA Filtration Plant	5,000	2025	2029
Boulevard Pit Multiuse	5,000	2025	2029
Debris Basin Retrofit #3	150	2025	2029
LA Forebay Recharge System--Upper Ballona	600	2025	2029
Sepulveda Basin--Hansen SG Pipe Line 54"	3,000	2025	2029
Cal Mat Pit	750	2030	2034
Park Retrofit #3	500	2030	2034
Sheldon Pit Multiuse	1,500	2030	2034
Valley Generating Station Stormwater Capture--Phase II	700	2030	2034

## EXHIBIT B



Valley Generating Station SWPPP Sample Point Map

